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10/527,519	08/30/2005	Stefan Nordhoff	5003073.060US1	5177
29737 7590 02/24/2010 SMITH MOORE LEATHERWOOD LLP P.O. BOX 21927 GREENSBORO, NC 27420				
EXAMINER				
ZALASKY, KATHERINE M				
ART UNIT		PAPER NUMBER		
1797				
NOTIFICATION DATE		DELIVERY MODE		
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/527,519

Applicant(s)

NORDHOFF ET AL.

Examiner

KATHERINE ZALASKY

Art Unit

1797

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 November 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 and 13-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 and 13-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB-08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claims 1-11 and 13-24, as amended 25 November 2009, are currently pending. **Claim 12** was previously cancelled.

Claim Interpretation

1. It is noted that **claims 1-11, 13-16 and 19-24** are directed to an apparatus. Regarding limitations recited in these claims which are directed to a manner of operating disclosed device, it is noted that neither the *manner of operating a disclosed device nor material or article worked upon* further limit an apparatus claim. Said limitations do not differentiate apparatus claims from prior art. See MPEP § 2114 and 2115. Further, it has been held that process limitations do not have patentable weight in an apparatus claim. See *Ex parte Thibault*, 164 USPQ 666, 667 (Bd. App. 1969) that states "Expressions relating the apparatus to contents thereof and to an intended operation are of no significance in determining patentability of the apparatus claim."

Claim Rejections - 35 USC § 103

2. **Claims 1-9, 13 and 15-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Henriquez (US 4,840,737) in view of Bastiaensen et al. (WO 00/01657, as translated by US 6,541,665) or, alternatively, Bastiaensen et al. (WO 00/01657, as translated by US 6,541,665) in view of Henriquez (US 4,840,737).**

Regarding **claims 1 and 13**, Henriquez discloses a washing apparatus comprising:

- a first region, to which a wash material is supplied (Figure 1, inlet 21, cavity 23)
- a second region, in which the wash material is washed (Figure 1, cavity 25)
- a third region (Figure 1, cavity above grid 26, 28)
- a flow resistance provided between the second region and the third region (Figure 1, disintegrator 26)

wherein the second region is at least partially in the form of a column (C2/L54-57).

The reference does not explicitly disclose the column has a diameter of at least about 300 mm or greater. However, since the instant specification is silent to unexpected results, it would have been obvious to one of ordinary skill in the art to change the diameter of the column, since such a modification would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art. *In re Rose*, 220 F.2d 459, 105 USPQ 237 (CCPA 1955). Where the only difference between the prior art and the claims is a recitation of relative dimensions of the claimed device, and the device having the claimed dimensions would not perform differently than the prior art device, the claimed device is not patentably distinct from the prior art device, *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984).

Additionally, while the third region is not explicitly shown to be capable of melting the material, the reference discloses that the apparatus comprises static resisting means and disintegration means. The reference also adds that disintegration of the bed of crystals can be achieved through melting (C1/L16-18, L26-29).

Bastiaensen et al. discloses a method of producing and purifying acrylic acid through crystallization (abstract). While the reference does teach that once the crystals are formed, they are transported to a separation unit to be filtered from the mother liquor and then washed (C5/L39-C6/L3), Bastiaensen et al. does not provide any specific apparatus for this process. The reference does teach, however, that the crystal washing steps may be combined with a melting step in order to further increase the purity of the crystals (C5/L66-C6/L20).

It would have been obvious to one having ordinary skill in the art at the time of the invention to incorporate a melting region after or in conjunction with the resisting means of

Henriquez, as taught by Bastiaensen et al., since doing so will help increase the purity of the final product.

Alternatively, it would have been obvious to one having ordinary skill in the art at the time of the invention to obtain the details of the separating and washing apparatus which are missing from the method of Bastiaensen et al. by performing a literature search or by reviewing known references, such as Henriquez.

Regarding **claims 2-7**, modified Henriquez discloses all of the claim limitations as set forth above. Additionally, Henriquez discloses the washing apparatus wherein:

- the flow resistance is arranged non-rotatable about a central longitudinal axis of the second region (Figure 1, disintegrator 26, C5/L26-40)
- there is provided between the first region and the second region a solid/liquid separation apparatus, having a filtrate offtake line (Figure 1, inlet 21, cavity 23, cavity 25, filter 20, filtrate discharge 24)
- the solid/liquid separation apparatus is in the form of a filter in a wall adjacent to the second region (Figure 1, inlet 21, cavity 23, cavity 25, filter 20, filtrate discharge 24, C5/L26-33)
- the wall is arranged at an angle in the range from 0 to less than about 90°, relative to the central longitudinal axis (Figure 1, filter 20, filtrate discharge 24, C5/L26-33)
- the flow resistance has at least one opening (Figure 1, disintegrator 26, C5/L33-C6/L7, may be a grid, mesh, perforated plate)
- the flow resistance is characterized by a relative free cross-sectional area in the range from 0 to less than about 100%, relative to the total area of the flow

resistance (Figure 1, disintegrator 26, C5/L33-C6/L7, may be a grid, mesh, perforated plate, open space must be between 0 and 100%)

Regarding **claim 8 and 9**, modified Henriquez discloses all of the claim limitations as set forth above. Henriquez also discloses that the disintegrator may be a perforated plate or grid (C5/L34-38) and that it may further comprise knives or scrapers (C5/L67-C6/L5). Therefore, it would have been obvious to one of ordinary skill in the art to use knives or scrapers in conjunction with the perforated plate or grid. Many knives/scrapers are known in the art for this type of application (as evidenced by Ghodsizadeh et al., US 4,830,645, Figure 3, among others). With the addition of a scraping/knife element, the apparatus is capable of having a variable free cross-sectional area and tempering the flow resistance.

Regarding limitations recited in **claims 8 and 9** which are directed to a manner of operating disclosed apparatus, it is noted that neither the manner of operating a disclosed device nor material or article worked upon further limit an apparatus claim. Said limitations do not differentiate apparatus claims from prior art. See MPEP § 2114 and 2115. Further, it has been held that process limitations do not have patentable weight in an apparatus claim. See *Ex parte Thibault*, 164 USPQ 666, 667 (Bd. App. 1969) that states "Expressions relating the apparatus to contents thereof and to an intended operation are of no significance in determining patentability of the apparatus claim."

Regarding **claims 15 and 16**, modified Henriquez discloses all of the claim limitations as set forth above. Additionally, Bastiaensen et al. discloses a synthesis device comprising a synthesis installation and downstream a purification apparatus as defined in **claim 13**, wherein the synthesis device wherein the synthesis installation is a gaseous phase oxidation synthesis unit (C1/L5-20, C5/L39-55).

Regarding **claim 17**, modified Henriquez discloses all of the claim limitations as set forth above. Additionally, Henriquez discloses a method of purifying a wash material, wherein the wash material is supplied by way of the first region of a washing apparatus defined in **claim 1** and a target product is obtained (C3/L6-54).

Regarding **claim 18**, modified Henriquez discloses all of the claim limitations as set forth above. Additionally, Bastiaensen et al. discloses the method wherein the wash material contains at least about 20% of the target product by weight (C5/L66-C6/L7, Table 1).

Regarding **claim 19**, modified Henriquez discloses all of the claim limitations as set forth above. Additionally, Bastiaensen et al. discloses a product selected from the group consisting of food, polymers, fuels, lubricants, cleaning agents, dyes and pharmaceuticals comprising target product made by the method of **claim 17** (C1/L5-20).

Regarding **claim 20**, modified Henriquez discloses all of the claim limitations as set forth above. Additionally, Bastiaensen et al. discloses a product selected from the group consisting of food, monomers, fuels, solvents, waste-water treatment and isomer separation prepared by a purification apparatus of **claim 13** (C1/L5-20).

Regarding limitations recited in **claims 21-24** which are directed to a manner of operating disclosed apparatus, it is noted that neither the manner of operating a disclosed device nor material or article worked upon further limit an apparatus claim. Said limitations do not differentiate apparatus claims from prior art. See MPEP § 2114 and 2115. Further, it has been held that process limitations do not have patentable weight in an apparatus claim. See Ex parte Thibault, 164 USPQ 666, 667 (Bd. App. 1969) that states "Expressions relating the apparatus to contents thereof and to an intended operation are of no significance in determining patentability of the apparatus claim."

3. **Claims 10, 11 and 14** are rejected under 35 U.S.C. 103(a) as being unpatentable over Henriquez (US 4,840,737) in view of Bastiaensen et al. (WO 00/01657, as translated by US 6,541,665), as applied to **claims 1, 4 and 13** above, and further in view of Meisenburg et al. (US 3,801,285).

Regarding **claims 10, 11 and 14**, modified Henriquez discloses all of the claim limitations as set forth above. Additionally, while Henriquez does disclose an inlet for the suspension (Figure 1, inlet 19, C5/L26-30), the reference does not disclose that a conveying means free of pulsation is provided upstream of the first region or at least partially in the first region, wherein the conveying means free of pulsation has a conveyor spiral, or the apparatus wherein a dwell-time container is provided between the crystal-producer and the washing apparatus.

Meisenburg et al. discloses a spiral-shaped conveying apparatus for transporting a crystal suspension (abstract). The apparatus includes cooling sections which help recover crystals and slow conveying means which help to mix and homogenize the suspension without the risk of crystals being deposited from the mother liquor (C2/L17-56).

It would have been obvious to one having ordinary skill in the art at the time of the invention to incorporate a spiral-conveyor between the crystal synthesis apparatus and the wash column of modified Henriquez, as taught by Meisenburg, since doing so will help to further develop the crystals through cooling and also prevent crystals from becoming separated from the mother liquor while being transported to the filtration and wash column.

Double Patenting

4. Applicant is advised that should **claim 22** be found allowable, **claim 24** will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing,

despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Response to Arguments

5. Applicant's arguments filed 25 November 2009 have been fully considered but they are not persuasive.

6. Applicant has argued that the dimensions of the second region provide unexpected results and therefore the change in size is non-obvious. This argument is not persuasive because the *only* statement regarding the effect of the size of the second unit is in [0035] of the PG PUB which states:

[0035] Due to this dimensioning of the Second Region the complex fluid mechanic of the wash material is taken into account advantageously.

While it is somewhat unclear to the examiner what the "unexpected result" is in the above statement, it is assumed that the Applicant believes that the size allows for better flow of the wash material. The range cited by the claim, "300 mm or greater", is hardly limiting. In fact the range is indefinite and may be subject to a 112 rejection since it is unbounded and can presumably extend to infinity. The instant specification has failed to provide any evidence that such sizing produces unexpected results. Change of fluid flow/dynamics due to a change in the size of the diameter of the container or conduit is expected by one of ordinary skill in the art.

7. Applicant has argued that Henriquez does not disclose a third region. The space above the disintegrator (26), also labeled as cavity (28), was cited as the third region Henriquez. Other than the limitation that the third region should be capable of melting the wash material, there are no further limitations to the "third region" in the independent claim.

8. Further, the Applicant has argued that the combination of Henriquez with Bastiaensen does not result in a third region which is capable of melting the wash material. However,

Henriquez discloses that the apparatus comprises static resisting means and disintegration means and that the disintegration may be achieved through melting. Bastiaensen teaches that crystal washing steps can be combined with the melting stages to increase purity. Therefore, the references suggest that a melting stage can be combined with the third region of Henriquez, which contains a washing liquid input and is in close proximity with the static resisting means which is between the second and third regions.

9. In response to applicant's argument that the conveyor of Meisenburg et al. is located in a different portion than that which is claimed, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to KATHERINE ZALASKY whose telephone number is (571) 270-7064. The examiner can normally be reached on 7:30am - 6:00pm Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vickie Kim can be reached on (571)272-0579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Krishnan S Menon/
Primary Examiner, Art Unit 1797

/KZ/
16 February 2010